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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,565	03/11/2005	Peter Stewart Allan	MARK5974	7323
22430	7590	11/28/2007	EXAMINER	
YOUNG LAW FIRM, P.C.			EWALD, MARIA VERONICA	
ALAN W. YOUNG			ART UNIT	PAPER NUMBER
4370 ALPINE ROAD			1791	
SUITE 106			MAIL DATE	DELIVERY MODE
PORTOLA VALLEY, CA 94028			11/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/527,565

Applicant(s)

ALLAN ET AL.

Examiner

Maria Veronica D. Ewald

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19,20 and 23-32 is/are pending in the application.
- 4a) Of the above claim(s) 31 and 32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19,20 and 23-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

13. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 3, 2007 has been entered.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19 – 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amato, et al. (U.S. 3,523,147) in view of Grunitz (U.S. 6,203,747). Amato, et al. teach a molding tool that improves the flow characteristics of molding material being introduced into a mold, the molding tool comprising: a fixed portion defining an elongate chamber (item 41 – figure 3); a flow path having a longitudinal axis through which a material to be injection molded passes in use, the flow path passing through a portion of the elongate chamber (item 45 – figure 3); an ultrasonically

vibrating probe disposed coaxially within the elongate chamber (item 53 – figure 3; column 4, lines 60 – 65) and at least partially into the flow path at an angle transverse to the longitudinal axis of said flow path so that probe directly contacts and vibrates the material passing through the flow path as the material is being injected (figure 3); wherein the molding tool includes a fixed part that is fixed relative to an injection barrel during normal use and a moving part that is adapted to move relative to the fixed part during normal use and wherein the flow path is formed in the fixed part of the injection molding tool (figure 3; column 1, lines 20 – 35); wherein the ultrasonic vibrating probe is mounted on a part of the molding tool that forms the flow path (figure 3).

Amato, et al., however, do not explicitly teach that the molding tool is specifically mounted or used in accordance with injection molding. It is known to one of ordinary skill in the art to mount or apply ultrasonic vibration via an ultrasonic horn or device to an injection barrel for the purpose of increasing the homogeneity and physical characteristics of the resin to be molded. For example, in a method to fabricate preforms or products via injection molding, Grunitz teaches the use of an ultrasonic device mounted to the injection barrel. The ultrasonic vibrations transmitted to the resin increase its homogeneity, reduce internal molecular friction and maintain the melt in its molten state (column 2, lines 50 –67).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to configure the apparatus of Amato, et al. such that it is mounted or used in accordance with an injection molding tool, for the purpose of

increasing the resin's homogeneity, reducing internal molecular friction and maintaining the melt in its molten state.

Claims 19 – 20, 23 – 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dinzbarg, et al. (U.S. 5,955,035) in view of Grunitz (U.S. 6,203,747).

Dinzbarg, et al. teach an injection molding tool that improves the flow characteristics of molding material being introduced into a mold, the molding tool comprising: a fixed portion defining an elongate chamber (item 50 – figure 2; items 18a, 18b – figure 3); a flow path having a longitudinal axis through which a material to be injection molded passes in use, the flow path passing through a portion of the elongate chamber (item 22 – figure 2; item 22a – figure 3); an ultrasonically vibrating probe disposed coaxially within the elongate chamber (item 20 – figure 2; items 20a and 20b – figure 3) and at least partially into the flow path at an angle transverse to the longitudinal axis of said flow path so that probe directly contacts and vibrates the material passing through the flow path as the material is being injected (figures 2 and 3); wherein the tool includes a fixed part that is fixed relative to an injection barrel during normal use and a moving part that is adapted to move relative to the fixed part during normal use and wherein the flow path is formed in the fixed part of the molding tool (figures 1 – 3); wherein the ultrasonic vibrating probe is mounted on a part of the molding tool that forms the flow path (figures 2 – 3).

The reference further teaches that there is a non-metallic seating means for mounting the ultrasonically vibrating probe within the tool, the non-metallic seating

means being configured to prevent metal-to-metal contact between the ultrasonically vibrating probe and remaining portions of the injection molding tool (items 174 and 176 – figure 6; column 11, lines 35 – 65); wherein the non-metallic seating means are also configured to provide a seal about the ultrasonically vibrating probe (items 174 and 176 – figure 6; column 11, lines 35 – 65); wherein there is a seal disposed about the ultrasonically vibrating probe at a nodal point on the ultrasonically vibrating probe where little or no vibration occurs (figure 6); wherein the seal includes a metallic seal means (figure 6; column 11, lines 50 – 65); wherein the ultrasonically vibrating probe is configured to operate at a frequency of between 10kHz to 50 kHz (column 8, lines 45 – 50).

However, Dinzburg, et al. do not explicitly teach that the tool is mounted onto an injection molding tool. The apparatus is comprised of an extruder screw and is capable of handling many types of polymer materials which are found in injection molding processes. Furthermore, it is known to one of ordinary skill in the art to mount or subject elastomeric or polymeric materials to ultrasonic vibration for the purpose of improving its physical properties, increase its homogeneity and maintain the material in its molten state. For example, in a method to fabricate preforms or products via injection molding, Grunitz teaches the use of an ultrasonic device mounted to the injection barrel. The ultrasonic vibrations transmitted to the resin increase its homogeneity, reduce internal molecular friction and maintain the melt in its molten state (column 2, lines 50 –67).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to configure the apparatus of Dinzburg, et al. such that it is

mounted or used in accordance with an injection molding tool, for the purpose of increasing the resin's homogeneity, reducing internal molecular friction and maintaining the melt in its molten state.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dinzborg, et al. in view of Grunitz and further in view of Jameson, et al. (U.S. 6,010,592). Dinzborg, et al. and Grunitz teach the characteristics previously described but do not teach that the ultrasonic probe is a sonotrode.

In a method to transmit vibrations to resin materials being extruded or forced through an orifice, Jameson, et al. teach that an ultrasonic probe is mounted to a die housing. The ultrasonic probe can be a sonotrode (column 2, lines 55 – 65) or any other type of vibration means known in the art.

Thus, because Dinzborg, et al., Grunitz and Jameson, et al. teach the use of ultrasonic probes to transmit vibrations to polymeric or resin materials, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to configure the apparatus of Dinzborg, et al., configured as taught by Grunitz, further configured such that the ultrasonic probe is a sonotrode, since sonotrodes as ultrasonic devices are known within the art to vibrate viscous or molten materials, as taught by Jameson, et al.

Response to Arguments

15. Applicant's arguments, see pages 5 – 6, filed October 3, 2007 with respect to the rejection(s) of claim(s) 19 – 30 under 103(a) have been fully considered and are persuasive. Applicant argues that Jameson, et al. do not teach that the ultrasonic horn is disposed at an angle transverse to the longitudinal axis of the flow path. Examiner agrees that the horn is disposed coaxial with the flow path. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of both Amato, et al. and Dinzburg, et al. in view of Grunitz and Jameson, et al.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Veronica D. Ewald whose telephone number is 571-272-8519. The examiner can normally be reached on M-F, 8 - 4:30.

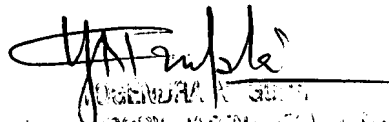
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MVE


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